Chembiochem. 2006 Apr 3;7(4):638-644.
PMID: 16521141 [PubMed - as supplied by publisher]

20: Boyer S, David JP, Rey D, Lemperiere G, Ravanel P. Related Articles, Links

Response of aedes aegypti (Diptera: Culicidae) larvae to three xenobiotic exposures: larval tolerance and detoxifying enzyme activities.
Environ Toxicol Chem. 2006 Feb;25(2):470-6.
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=> s megosamine biosynthetic gene cluster
L1 0 MEGOSAMINE BIOSYNTHETIC GENE CLUSTER

=> s megosamine
L2 52 MEGOSAMINE

=> s l2 and (megK)
L3 27 L2 AND (MEGK)

=> d l3 ti abs ibib tot

L3 ANSWER 1 OF 27 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide;
involving vector-mediated gene transfer and expression in host cell for polyketide production
AN 2004-10434 BIOTECHDS
AB DERWENT ABSTRACT:
NOVELTY - An isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) an isolated, purified, or recombinant nucleic acid (II) comprising genes for the biosynthesis mycarose for attachment to a polyketide, the enzymes comprising the MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI enzymes; (2) an isolated, purified, or recombinant nucleic acid (III) comprising genes for the biosynthesis mycarose for attachment of **megosamine** of a polyketide, the enzymes comprising the MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDII, MegDIII, and MegDI enzymes; (3) an isolated, purified, or recombinant nucleic acid (IV) comprising genes for the biosynthesis of desosamine to a polyketide, the enzymes consisting of the MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDIII enzymes; (4) an expression vector (V) comprising (I); (5) a host cell comprising (I); (6) a host cell comprising (II) that expresses a polyketide modifying enzyme encoded by a gene from a mycarose biosynthetic gene set, where the enzyme is chosen from MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI, MegBV, and MegF; (7) a host cell comprising (III) that expresses a polyketide modifying enzyme encoded by a gene from a **megosamine** biosynthetic gene set, where the enzyme is chosen from MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDVI, MegDVII, MegDII, MegDIII, and MegDI; and (8) a host cell comprising (IV) that expresses a polyketide modifying enzyme encoded by a gene from a desosamine biosynthetic gene set, where the enzyme is chosen from MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDII, and MegCIII.

BIOTECHNOLOGY - Preferred Nucleic Acid: In (I), the gene encodes a polyketide modifying enzymes chosen from MegR, **MegK**, MegCV, MegCIV, MegBVI, MegF, MegBII, MegM, and MegL. (I) further comprises gene encoding an enzyme for the attachment of mycarose to the polyketide, preferably MegBV enzyme. (I) further comprises gene encoding an enzyme for hydroxylation of the polyketide, preferably MegF enzyme. (IV) further comprises gene encoding an enzyme for the attachment of desosamine to the polyketide, preferably MegCIII enzyme. The polyketide modifying gene is operably linked to heterologous promoter.

USE - (M1) is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising (I) under conditions in which the cell expresses a product of a gene encoded by (I) under conditions in which the unmodified polyketide is present, and producing the modified polyketide. In (M1), the cell further comprises (I) one or more module of a polyketide synthase. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. (All claimed.)

EXAMPLE - Isolation of the megalomicin biosynthetic gene cluster was as follows. A cosmid library was prepared in SuperCos vectors from Micromonospora megalomicea total DNA partially digested with Sau3AI and introduced into Escherichia coli using a Gigapack III XL in vitro packaging kit. 32P-labeled DNA probes encompassing the KS2 domain from DEBS, or a mixture of segments encompassing modules 1 and 2 from DEBS, were used separately to screen the cosmid library by colony hybridization. Several colonies which hybridized with the probes were further analyzed by sequencing the ends of their cosmid inserts using T3 and T7 primers. BLAST analysis of the sequences revealed several colonies with DNA sequences highly homologous to genes from the ery cluster. Together with restriction analysis, that led to the isolation of two overlapping cosmids, pKOSO79-93A and pKOSO79-93D which covered 45 kbase the meg cluster. A 400 base pair PCR fragment was generated from the left end of pKOSO79-93D and used to reprobe the cosmid library. Likewise, a 200 base pair PCR fragment generated from the right end of pKOSO79-93A was used to reprobe the cosmid library. Analysis of hybridizing colonies, as described above, resulted in identification of two additional cosmids pKOSO79-938B adjacent to the 5' end of pKOSO79-93D and pKOSO05.57-2.3B which overlapped the 3' ends of pKOSO79-93A and pKOSO79-93D cosmids. BLAST analysis of the far left and right end sequences of these cosmids

indicated no homology to any known genes related to polyketide biosynthesis, and therefore indicates that the set of four cosmids spans the entire megalomicin biosynthetic gene cluster. The glycosyl synthase, transfer, and regulatory genes of the upstream region of the meg PKS were contained in the nucleotide sequence which had a 9024 nucleotide sequence given in the specification. The glycosyl synthase, transfer, and regulatory genes of the downstream region of the meg PKS were contained in the nucleotide sequence which had a 17596 nucleotide sequence given in the specification. (51 pages)

ACCESSION NUMBER: 2004-10434 BIOTECHDS
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide; involving vector-mediated gene transfer and expression in host cell for polyketide production
AUTHOR: HUTCHINSON R C; KATZ L; REID R; HU Z; GRAMAJO H
PATENT ASSIGNEE: KOSAN BIOSCIENCES INC
PATENT INFO: WO 2004003169 8 Jan 2004
APPLICATION INFO: WO 2003-US20681 30 Jun 2003
PRIORITY INFO: US 2002-393016 28 Jun 2002; US 2002-393016 28 Jun 2002
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-203379 [19]

L3 ANSWER 2 OF 27 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN 2004-203379 [19] WPIDS
AB WO2004003169 A UPAB: 20040318
NOVELTY - An isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) an isolated, purified, or recombinant nucleic acid (II) comprising genes for the biosynthesis mycarose for attachment to a polyketide, the enzymes comprising the MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI enzymes;

(2) an isolated, purified, or recombinant nucleic acid (III) comprising genes for the biosynthesis mycarose for attachment of **megosamine** of a polyketide, the enzymes comprising the MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDII, MegDIII, and MegDI enzymes;

(3) an isolated, purified, or recombinant nucleic acid (IV) comprising genes for the biosynthesis of desosamine to a polyketide, the enzymes consisting of the MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDIII enzymes;

(4) an expression vector (V) comprising (I);

(5) a host cell comprising (I);

(6) a host cell comprising (II) that expresses a polyketide modifying enzyme encoded by a gene from a mycarose biosynthetic gene set, where the enzyme is chosen from MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI, MegBV, and MegF;

(7) a host cell comprising (III) that expresses a polyketide modifying enzyme encoded by a gene from a **megosamine** biosynthetic gene set, where the enzyme is chosen from MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDVI, MegDVII, MegDII, MegDIII, and MegDI; and

(8) a host cell comprising (IV) that expresses a polyketide modifying enzyme encoded by a gene from a desosamine biosynthetic gene set, where the enzyme is chosen from MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and

MegDII, and MegCIII.

USE - (M1) is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising (I) under conditions in which the cell expresses a product of a gene encoded by (I) under conditions in which the unmodified polyketide is present, and producing the modified polyketide. In (M1), the cell further comprises (I) one or more module of a polyketide synthase. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. (All claimed.)

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic of the megalomicin polyketide synthase (meg DEBS) and corresponding meg genes upstream and downstream of the meg DEBS region and cosmids overlapping this region.

Dwg.1/3

ACCESSION NUMBER: 2004-203379 [19] WPIDS
DOC. NO. CPI: C2004-080057
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
DERWENT CLASS: B03 B04 C02 D16
INVENTOR(S): GRAMAJO, H; HU, Z; HUTCHINSON, R C; KATZ, L; REID, R; HUTCHINSON, C R
PATENT ASSIGNEE(S): (KOSA-N) KOSAN BIOSCIENCES INC; (GRAM-I) GRAMAJO H; (HUZZ-I) HU Z; (HUTC-I) HUTCHINSON C R; (KATZ-I) KATZ L; (REID-I) REID R
COUNTRY COUNT: 105
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2004003169	A2	20040108	(200419)*	EN	51
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
AU 2003258978	A1	20040119	(200447)		
US 2004203015	A1	20041014	(200468)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004003169	A2	WO 2003-US20681	20030630
AU 2003258978	A1	AU 2003-258978	20030630
US 2004203015	A1 Provisional	US 2002-393016P	20020628
		US 2003-611442	20030630

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003258978	A1 Based on	WO 2004003169

PRIORITY APPLN. INFO: US 2002-393016P 20020628; US 2003-611442 20030630

L3 ANSWER 3 OF 27 HCAPLUS COPYRIGHT 2006 ACS on STN
TI Recombinant polynucleotides encoding megalomicin polyketide modifying

enzymes, and uses thereof

AB The invention discloses biosynthetic, transfer and regulatory genes for various sugars to effectuate polyketide modification. It claims use of genes encoding biosynthetic enzymes for megalomicin A and use of genes involved in biosynthesis of thymine diphosphate-**megosamine**, TDP-mycarose, and TDP-desosamine. The genes that are claimed include megR, megF, **megK**, megCIV, megCV, megBVI, megBIII, megL, megM, megBIV, megDIV, megBII-2, megBV, megCII, megDV, megDII, megDIII, megDI, megCIII, megDVI, and megDVII. The invention further claims enzyme activities for attachment of mycarose, desosamine, and **megosamine** to a polyketide and the megF enzyme for hydroxylation of a polyketide. Materials and methods of the invention include heterologous promoters, expression vectors, recombinant host cells, and cell cultures to produce modified polyketides. Megalomicins are 6-O-glycosides of erythromycin C with acetyl or propionyl groups esterified to the 3''' or 4''' hydroxyls of the mycarose sugar. Their reported biol. activities include antibacterial activity, antiviral activity against herpes, and antiparasitic activity.

ACCESSION NUMBER: 2004:20831 HCAPLUS
DOCUMENT NUMBER: 140:88769
TITLE: Recombinant polynucleotides encoding megalomicin polyketide modifying enzymes, and uses thereof
INVENTOR(S): Hutchinson, Richard C.; Katz, Leonard; Reid, Ralph; Hu, Zhihao; Gramajo, Hugo
PATENT ASSIGNEE(S): Kosan Biosciences, Inc., USA
SOURCE: PCT Int. Appl., 51 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2004003169	A2	20040108	WO 2003-US20681		20030630
WO 2004003169	A3	20050804			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2003258978	A1	20040119	AU 2003-258978		20030630
US 2004203015	A1	20041014	US 2003-611442		20030630
PRIORITY APPLN. INFO.:			US 2002-393016P	P	20020628
			WO 2003-US20681	W	20030630

L3 ANSWER 4 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14170 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant

nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence is used in the exemplification of the invention.

ACCESSION NUMBER: ADI14170 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Oligonucleotide of the invention SEQ ID NO:24.

L3 ANSWER 5 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14147 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence contains upstream megalomicin modification enzyme genes.

ACCESSION NUMBER: ADI14147 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea cosmid pKOS079-138B SEQ ID NO:1.

L3 ANSWER 6 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14161 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant

nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14161 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megDIV forward PCR primer SEQ ID NO:15.

L3 ANSWER 7 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14163 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14163 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBV forward PCR primer SEQ ID NO:17.

L3 ANSWER 8 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14157 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14157 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIV forward PCR primer SEQ ID NO:11.

L3 ANSWER 9 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14167 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14167 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBVI forward PCR primer SEQ ID NO:21.

L3 ANSWER 10 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14155 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14155 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIII forward PCR primer SEQ ID NO:9.

L3 ANSWER 11 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14151 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14151 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megL forward PCR primer SEQ ID NO:5.

L3 ANSWER 12 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14159 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14159 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megF forward PCR primer SEQ ID NO:13.

L3 ANSWER 13 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14160 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the

unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14160 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megF reverse PCR primer SEQ ID NO:14.

L3 ANSWER 14 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14166 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14166 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBII-2 reverse PCR primer SEQ ID NO:20.

L3 ANSWER 15 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14149 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant

nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence is used in the exemplification of the invention.

ACCESSION NUMBER: ADI14149 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Synthetic oligonucleotide of the invention SEQ ID NO:3.

L3 ANSWER 16 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14154 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14154 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megM reverse PCR primer SEQ ID NO:8.

L3 ANSWER 17 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14158 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14158 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIV reverse PCR primer SEQ ID NO:12.

L3 ANSWER 18 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14156 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14156 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630

PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIII reverse PCR primer SEQ ID NO:10.

L3 ANSWER 19 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14148 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence contains downstream megalomicin modification enzyme genes.
ACCESSION NUMBER: ADI14148 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea cosmid KOS205-57-2.3B SEQ ID NO:2.

L3 ANSWER 20 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14169 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14169 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or

MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Oligonucleotide of the invention SEQ ID NO:23.

L3 ANSWER 21 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14168 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14168 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBVI reverse PCR primer SEQ ID NO:22.

L3 ANSWER 22 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14165 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring

non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14165 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBII-2 forward PCR primer SEQ ID NO:19.

L3 ANSWER 23 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14153 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14153 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megM forward PCR primer SEQ ID NO:7.

L3 ANSWER 24 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14162 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A

method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14162 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megDIV reverse PCR primer SEQ ID NO:16.

L3 ANSWER 25 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14152 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14152 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megL reverse PCR primer SEQ ID NO:6.

L3 ANSWER 26 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme

e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14164 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14164 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.

PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630

PRIORITY INFO: US 2002-393016P 20020628

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: 2004-203379 [19]

DESCRIPTION: M. megalomicea megBV reverse PCR primer SEQ ID NO:18.

L3 ANSWER 27 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14150 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying gene, where the gene encodes a polyketide modifying enzyme chosen from MegR, MegF, **MegK**, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces **megosamine** and can attach **megosamine** to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce **megosamine**. The present sequence is used in the exemplification of the invention.

ACCESSION NUMBER: ADI14150 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying gene, there gene encodes polyketide modifying enzyme e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.

PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630

PRIORITY INFO: US 2002-393016P 20020628

DOCUMENT TYPE: Patent

LANGUAGE: English

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OTHER SOURCE:      2004-203379 [19]
DESCRIPTION:       Synthetic oligonucleotide of the invention SEQ ID NO:4.

=> d his

     (FILE 'HOME' ENTERED AT 12:24:36 ON 14 APR 2006)

     FILE 'MEDLINE, BIOSIS, BIOTECHDS, EMBASE, WPIDS, HCAPLUS, DGENE,
     SCISEARCH' ENTERED AT 12:25:13 ON 14 APR 2006
L1             0 S MEGOSAMINE BIOSYNTHETIC GENE CLUSTER
L2            52 S MEGOSAMINE
L3            27 S L2 AND (MEGK)

=> e katz, l/au
E1             3     KATZ ZEILIG M/AU
E2            18     KATZ ZVI/AU
E3             0 --> KATZ, L/AU
E4             1     KATZA E/AU
E5             1     KATZAGIANNAKIS J/AU
E6             1     KATZAKIAN/AU
E7             9     KATZAKIAN A/AU
E8             1     KATZAKIAN A J/AU
E9             3     KATZAKIAN ARTHUR/AU
E10           23     KATZAKIAN ARTHUR JR/AU
E11            1     KATZAKIAN JUN ARTHUR/AU
E12            1     KATZAKIAN JUNIOR ARTHUR/AU

=> e hutchinson, x/au
E1             1     HUTCHINSON YVONNE/AU
E2             1     HUTCHINSON Z/AU
E3             0 --> HUTCHINSON, X/AU
E4             1     HUTCHINSONA W D/AU
E5             1     HUTCHINSONCOLAS J/AU
E6             1     HUTCHINSONCOLE H/AU
E7             1     HUTCHINSONHOWORTH C/AU
E8             1     HUTCHINSONI CLYDE A II/AU
E9             2     HUTCHINSONWILLIAMS K/AU
E10            7     HUTCHINSONWILLIAMS K A/AU
E11            1     HUTCHINSRD/AU
E12            1     HUTCHINSSO J T/AU

=> s megalomicin
L4           223 MEGALOMICIN

=> s l4 and gene
L5           104 L4 AND GENE

=> s l5 and (polyketide modifying enzyme)
L6            26 L5 AND (POLYKETIDE MODIFYING ENZYME)

=> d l6 ti abs ibib tot

L6    ANSWER 1 OF 26  BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI    Novel isolated, purified, or recombinant nucleic acid comprising
      polyketide modifying gene, there gene encodes
      polyketide modifying enzyme e.g., MegR, MegK,
      or MegM enzymes useful for producing modified polyketide;
         involving vector-mediated gene transfer and expression in
         host cell for polyketide production
AN    2004-10434  BIOTECHDS
AB    DERWENT ABSTRACT:
      NOVELTY - An isolated, purified, or recombinant nucleic acid (I)
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comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) an isolated, purified, or recombinant nucleic acid (II) comprising genes for the biosynthesis mycarose for attachment to a polyketide, the enzymes comprising the MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI enzymes; (2) an isolated, purified, or recombinant nucleic acid (III) comprising genes for the biosynthesis mycarose for attachment of megosamine of a polyketide, the enzymes comprising the MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDII, MegDIII, and MegDI enzymes; (3) an isolated, purified, or recombinant nucleic acid (IV) comprising genes for the biosynthesis of desosamine to a polyketide, the enzymes consisting of the MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDIII enzymes; (4) an expression vector (V) comprising (I); (5) a host cell comprising (I); (6) a host cell comprising (II) that expresses a **polyketide modifying enzyme** encoded by a **gene** from a mycarose biosynthetic **gene** set, where the enzyme is chosen from MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI, MegBV, and MegF; (7) a host cell comprising (III) that expresses a **polyketide modifying enzyme** encoded by a **gene** from a megosamine biosynthetic **gene** set, where the enzyme is chosen from MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDVI, MegDVII, MegDII, MegDIII, and MegDI; and (8) a host cell comprising (IV) that expresses a **polyketide modifying enzyme** encoded by a **gene** from a desosamine biosynthetic **gene** set, where the enzyme is chosen from MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDII, and MegCIII.

BIOTECHNOLOGY - Preferred Nucleic Acid: In (I), the **gene** encodes a polyketide modifying enzymes chosen from MegR, MegK, MegCV, MegCIV, MegBVI, MegF, MegBII, MegM, and MegL. (I) further comprises **gene** encoding an enzyme for the attachment of mycarose to the polyketide, preferably MegBV enzyme. (I) further comprises **gene** encoding an enzyme for hydroxylation of the polyketide, preferably MegF enzyme. (IV) further comprises **gene** encoding an enzyme for the attachment of desosamine to the polyketide, preferably MegCIII enzyme. The polyketide modifying **gene** is operably linked to heterologous promoter.

USE - (M1) is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising (I) under conditions in which the cell expresses a product of a **gene** encoded by (I) under conditions in which the unmodified polyketide is present, and producing the modified polyketide. In (M1), the cell further comprises (I) one or more module of a polyketide synthase. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. (All claimed.)

EXAMPLE - Isolation of the **megalomicin** biosynthetic **gene** cluster was as follows. A cosmid library was prepared in SuperCos vectors from Micromonospora megalomicea total DNA partially digested with Sau3AI and introduced into Escherichia coli using a Gigapack III XL in vitro packaging kit. 32P-labeled DNA probes encompassing the KS2 domain from DEBS, or a mixture of segments encompassing modules 1 and 2 from DEBS, were used separately to screen the cosmid library by colony hybridization. Several colonies which hybridized with the probes were further analyzed by sequencing the ends of their cosmid inserts using T3 and T7 primers. BLAST analysis of the sequences revealed several colonies with DNA sequences highly homologous to genes from the ery cluster. Together with restriction analysis, that led to the isolation of two overlapping cosmids, pKOSO79-93A and pKOSO79-93D which covered 45 kbase the meg cluster. A 400 base pair PCR fragment was generated from the left end of pKOSO79-93D and used to

reprobe the cosmid library. Likewise, a 200 base pair PCR fragment generated from the right end of pKOSO79-93A was used to reprobe the cosmid library. Analysis of hybridizing colonies, as described above, resulted in identification of two additional cosmids pKOSO79-938B adjacent to the 5' end of pKOSO79-93D and pKOSO05.57-2.3B which overlapped the 3' ends of pKOSO79-93A and pKOSO79-93D cosmids. BLAST analysis of the far left and right end sequences of these cosmids indicated no homology to any known genes related to polyketide biosynthesis, and therefore indicates that the set of four cosmids spans the entire **megalomicin** biosynthetic **gene** cluster. The glycosyl synthase, transfer, and regulatory genes of the upstream region of the meg PKS were contained in the nucleotide sequence which had a 9024 nucleotide sequence given in the specification. The glycosyl synthase, transfer, and regulatory genes of the downstream region of the meg PKS were contained in the nucleotide sequence which had a 17596 nucleotide sequence given in the specification. (51 pages)

ACCESSION NUMBER: 2004-10434 BIOTECHDS
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide;
involving vector-mediated **gene** transfer and expression in host cell for polyketide production
AUTHOR: HUTCHINSON R C; KATZ L; REID R; HU Z; GRAMAJO H
PATENT ASSIGNEE: KOSAN BIOSCIENCES INC
PATENT INFO: WO 2004003169 8 Jan 2004
APPLICATION INFO: WO 2003-US20681 30 Jun 2003
PRIORITY INFO: US 2002-393016 28 Jun 2002; US 2002-393016 28 Jun 2002
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-203379 [19]

L6 ANSWER 2 OF 26 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN 2004-203379 [19] WPIDS
AB WO2004003169 A UPAB: 20040318
NOVELTY - An isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) an isolated, purified, or recombinant nucleic acid (II) comprising genes for the biosynthesis mycarose for attachment to a polyketide, the enzymes comprising the MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI enzymes;

(2) an isolated, purified, or recombinant nucleic acid (III) comprising genes for the biosynthesis mycarose for attachment of megosamine of a polyketide, the enzymes comprising the MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDII, MegDIII, and MegDI enzymes;

(3) an isolated, purified, or recombinant nucleic acid (IV) comprising genes for the biosynthesis of desosamine to a polyketide, the enzymes consisting of the MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDIII enzymes;

(4) an expression vector (V) comprising (I);

(5) a host cell comprising (I);

(6) a host cell comprising (II) that expresses a **polyketide modifying enzyme** encoded by a **gene** from a

mycarose biosynthetic **gene** set, where the enzyme is chosen from MegM, MegL, MegBIII, MegBIV, MegDIV, MegBII-2, and MegBVI, MegBV, and MegF;

(7) a host cell comprising (III) that expresses a **polyketide modifying enzyme** encoded by a **gene** from a megosamine biosynthetic **gene** set, where the enzyme is chosen from MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDVI, MegDVII, MegDII, MegDIII, and MegDI; and

(8) a host cell comprising (IV) that expresses a **polyketide modifying enzyme** encoded by a **gene** from a desosamine biosynthetic **gene** set, where the enzyme is chosen from MegM, MegL, MegCII, MegCIV, MegCV, MegDII, and MegDII, and MegCIII.

USE - (M1) is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising (I) under conditions in which the cell expresses a product of a **gene** encoded by (I) under conditions in which the unmodified polyketide is present, and producing the modified polyketide. In (M1), the cell further comprises (I) one or more module of a polyketide synthase. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. (All claimed.)

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic of the **megalomicin** polyketide synthase (meg DEBS) and corresponding meg genes upstream and downstream of the meg DEBS region and cosmids overlapping this region.

Dwg.1/3

ACCESSION NUMBER: 2004-203379 [19] WPIDS
DOC. NO. CPI: C2004-080057
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
DERWENT CLASS: B03 B04 C02 D16
INVENTOR(S): GRAMAJO, H; HU, Z; HUTCHINSON, R C; KATZ, L; REID, R; HUTCHINSON, C R
PATENT ASSIGNEE(S): (KOSA-N) KOSAN BIOSCIENCES INC; (GRAM-I) GRAMAJO H; (HUZZ-I) HU Z; (HUTC-I) HUTCHINSON C R; (KATZ-I) KATZ L; (REID-I) REID R
COUNTRY COUNT: 105
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2004003169	A2	20040108	(200419)*	EN	51
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
AU 2003258978	A1	20040119	(200447)		
US 2004203015	A1	20041014	(200468)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004003169	A2	WO 2003-US20681	20030630
AU 2003258978	A1	AU 2003-258978	20030630
US 2004203015	A1 Provisional	US 2002-393016P	20020628
		US 2003-611442	20030630

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003258978	A1 Based on	WO 2004003169

PRIORITY APPLN. INFO: US 2002-393016P 20020628; US 2003-611442 20030630

L6 ANSWER 3 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14170 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14170 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Oligonucleotide of the invention SEQ ID NO:24.

L6 ANSWER 4 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14147 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present

sequence contains upstream **megalomicin** modification enzyme genes.

ACCESSION NUMBER: ADI14147 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea cosmid pKOS079-138B SEQ ID NO:1.

L6 ANSWER 5 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14161 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14161 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megDIV forward PCR primer SEQ ID NO:15.

L6 ANSWER 6 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14163 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying**

enzyme chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14163 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBV forward PCR primer SEQ ID NO:17.

L6 ANSWER 7 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14157 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14157 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIV forward PCR primer SEQ ID NO:11.

L6 ANSWER 8 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14167 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.
ACCESSION NUMBER: ADI14167 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBVI forward PCR primer SEQ ID NO:21.

L6 ANSWER 9 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14155 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.
ACCESSION NUMBER: ADI14155 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIII forward PCR primer SEQ ID NO:9.

L6 ANSWER 10 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising. polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14151 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.
ACCESSION NUMBER: ADI14151 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megL forward PCR primer SEQ ID NO:5.

L6 ANSWER 11 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14159 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present

sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14159 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megF forward PCR primer SEQ ID NO:13.

L6 ANSWER 12 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14160 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14160 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megF reverse PCR primer SEQ ID NO:14.

L6 ANSWER 13 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14166 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying**

enzyme chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14166 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBII-2 reverse PCR primer SEQ ID NO:20.

L6 ANSWER 14 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14149 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14149 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Synthetic oligonucleotide of the invention SEQ ID NO:3.

L6 ANSWER 15 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.

AN ADI14154 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14154 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megM reverse PCR primer SEQ ID NO:8.

L6 ANSWER 16 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.

AN ADI14158 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14158 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.

PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIV reverse PCR primer SEQ ID NO:12.

L6 ANSWER 17 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14156 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.
ACCESSION NUMBER: ADI14156 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIII reverse PCR primer SEQ ID NO:10.

L6 ANSWER 18 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14148 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence contains downstream **megalomicin** modification enzyme

genes.
ACCESSION NUMBER: ADI14148 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea cosmid KOS205-57-2.3B SEQ ID NO:2.

L6 ANSWER 19 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14169 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14169 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Oligonucleotide of the invention SEQ ID NO:23.

L6 ANSWER 20 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14168 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for

producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14168 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBVI reverse PCR primer SEQ ID NO:22.

L6 ANSWER 21 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14165 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14165 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBII-2 forward PCR primer SEQ ID NO:19.

L6 ANSWER 22 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising

polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.

AN ADI14153 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14153 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megM forward PCR primer SEQ ID NO:7.

L6 ANSWER 23 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.

AN ADI14162 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14162 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megDIV reverse PCR primer SEQ ID NO:16.

L6 ANSWER 24 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14152 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.
ACCESSION NUMBER: ADI14152 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megL reverse PCR primer SEQ ID NO:6.

L6 ANSWER 25 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14164 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a **gene** of the invention.

ACCESSION NUMBER: ADI14164 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBV reverse PCR primer SEQ ID NO:18.

L6 ANSWER 26 OF 26 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
AN ADI14150 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a polyketide modifying **gene**, where the **gene** encodes a **polyketide modifying enzyme** chosen from MegR, MegF, MegK, MegCIV, MegCV, MegBVI, MegBIII, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a **gene** encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14150 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising polyketide modifying **gene**, there **gene** encodes **polyketide modifying enzyme** e.g., MegR, MegK, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N) KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Synthetic oligonucleotide of the invention SEQ ID NO:4.

Refine Search

Search Results -

Terms	Documents
L3 and (megF or megK or megcIV or megBVI)	1

Database:
US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
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IBM Technical Disclosure Bulletins

Search: L4

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Search History

DATE: Friday, April 14, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=OR			
L4	L3 and (megF or megK or megcIV or megBVI)	1	L4
L3	6524841.pn.	1	L3
L2	6303342.pn.	1	L2
L1	5998194.pn.	1	L1

END OF SEARCH HISTORY

Refine Search

Search Results -

Terms	Documents
L9 and L8	0

Database:
US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L10

Refine Search

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Search History

DATE: Friday, April 14, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=OR			
L10	L9 and l8	0	L10
L9	hutchinson.in.	1326	L9
L8	katz.in.	2281	L8
L7	L1 and (method of producing modified polyketide)	1	L7
L6	L4 and (Host cell)	1	L6
L5	(L4 and Host cell)	506752	L5
L4	L3 and (megF or megK or megcIV or megBVI)	1	L4
L3	6524841.pn.	1	L3
L2	6303342.pn.	1	L2
L1	5998194.pn.	1	L1

END OF SEARCH HISTORY

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PASSWORD:
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NEWS 5	JAN 13	New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to INPADOC
NEWS 6	JAN 17	Pre-1988 INPI data added to MARPAT
NEWS 7	JAN 17	IPC 8 in the WPI family of databases including WPIFV
NEWS 8	JAN 30	Saved answer limit increased
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NEWS 10	FEB 22	The IPC thesaurus added to additional patent databases on STN
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NEWS 12	FEB 27	New STN AnaVist pricing effective March 1, 2006
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NEWS 14	FEB 28	TOXCENTER reloaded with enhancements
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NEWS 17	MAR 03	Updates in PATDPA; addition of IPC 8 data without attributes
NEWS 18	MAR 08	X.25 communication option no longer available after June 2006
NEWS 19	MAR 22	EMBASE is now updated on a daily basis
NEWS 20	APR 03	New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS 21	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
NEWS 22	APR 04	STN AnaVist $500 visualization usage credit offered
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biotechds
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                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

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FILE 'USPATFULL' ENTERED AT 11:03:24 ON 14 APR 2006
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=> s polyketide modifying gene
L1          27 POLYKETIDE MODIFYING GENE

=> s l1 and enzyme
L2          27 L1 AND ENZYME

=> s l2 and (MegF or MegK or MegCIV or MegCV or MegBIII)
L3          27 L2 AND (MEGF OR MEGK OR MEGCIV OR MEGCV OR MEGBIII)

=> d l3 ti abs ibib tot

L3   ANSWER 1 OF 27  USPATFULL on STN
TI     Recombinant genes for polyketide modifying enzymes
AB     Materials and methods to produce modified polyketides are disclosed. The
       biosynthesis, transfer and regulator genes for various sugars to
       effectuate polyketide modification are disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER:       2004:260518  USPATFULL
```

TITLE: Recombinant genes for polyketide modifying enzymes
INVENTOR(S): Hutchinson, C. Richard, San Mateo, CA, UNITED STATES
Katz, Leonard, Oakland, CA, UNITED STATES
Reid, Ralph, San Rafael, CA, UNITED STATES
Hu, Zhihao, Castro Valley, CA, UNITED STATES
Gramajo, Hugo, Berkeley, CA, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004203015	A1	20041014
APPLICATION INFO.:	US 2003-611442	A1	20030630 (10)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-393016P	20020628 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Ted Apple, (Townsend and Townsend and Crew), 379 Lytton Avenue, Palo Alto, CA, 94301
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Page(s)
LINE COUNT: 2721
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 2 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14170 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14170 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Oligonucleotide of the invention SEQ ID NO:24.

L3 ANSWER 3 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising

polyketide modifying gene, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14147 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence contains upstream megalomicin modification **enzyme** genes.

ACCESSION NUMBER: ADI14147 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.

PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630

PRIORITY INFO: US 2002-393016P 20020628

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: 2004-203379 [19]

DESCRIPTION: M. megalomicea cosmid pKOS079-138B SEQ ID NO:1.

L3 ANSWER 4 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14161 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14161 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.

PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megDIV forward PCR primer SEQ ID NO:15.

L3 ANSWER 5 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14163 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14163 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBV forward PCR primer SEQ ID NO:17.

L3 ANSWER 6 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14157 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14157 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIV forward PCR primer SEQ ID NO:11.

L3 ANSWER 7 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14167 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14167 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBVI forward PCR primer SEQ ID NO:21.

L3 ANSWER 8 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14155 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and

MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14155 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea **megBIII** forward PCR primer SEQ ID NO:9.

L3 ANSWER 9 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14151 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14151 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megL forward PCR primer SEQ ID NO:5.

L3 ANSWER 10 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14159 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14159 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.

PATENT INFO: WO 2004003169 A2 20040108 51

APPLICATION INFO: WO 2003-US20681 20030630

PRIORITY INFO: US 2002-393016P 20020628

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: 2004-203379 [19]

DESCRIPTION: M. megalomicea **megF** forward PCR primer SEQ ID NO:13.

L3 ANSWER 11 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN

TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

AN ADI14160 DNA DGENE

AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14160 DNA DGENE

TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.

INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H

PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea **megF** reverse PCR primer SEQ ID NO:14.

L3 ANSWER 12 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14166 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14166 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBII-2 reverse PCR primer SEQ ID NO:20.

L3 ANSWER 13 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14149 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach

megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.

ACCESSION NUMBER: ADI14149 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Synthetic oligonucleotide of the invention SEQ ID NO:3.

L3 ANSWER 14 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14154 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14154 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megM reverse PCR primer SEQ ID NO:8.

L3 ANSWER 15 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14158 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying**

gene, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14158 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBIV reverse PCR primer SEQ ID NO:12.

L3 ANSWER 16 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14156 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14156 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea **megBIII** reverse PCR primer SEQ ID

NO:10.

L3 ANSWER 17 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14148 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence contains downstream megalomicin modification **enzyme** genes.
ACCESSION NUMBER: ADI14148 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea cosmid KOS205-57-2.3B SEQ ID NO:2.

L3 ANSWER 18 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14169 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14169 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes

useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Oligonucleotide of the invention SEQ ID NO:23.

L3 ANSWER 19 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14168 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14168 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBVI reverse PCR primer SEQ ID NO:22.

L3 ANSWER 20 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14165 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing

the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14165 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBII-2 forward PCR primer SEQ ID NO:19.

L3 ANSWER 21 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14153 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14153 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megM forward PCR primer SEQ ID NO:7.

L3 ANSWER 22 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14162 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant

nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.

ACCESSION NUMBER: ADI14162 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megDIV reverse PCR primer SEQ ID NO:16.

L3 ANSWER 23 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14152 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14152 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]

DESCRIPTION: M. megalomicea megL reverse PCR primer SEQ ID NO:6.

L3 ANSWER 24 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14164 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence represents a PCR primer used to amplify a gene of the invention.
ACCESSION NUMBER: ADI14164 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: M. megalomicea megBV reverse PCR primer SEQ ID NO:18.

L3 ANSWER 25 OF 27 DGENE COPYRIGHT 2006 The Thomson Corp on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN ADI14150 DNA DGENE
AB The invention relates to a novel isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes. A method of the invention is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising the recombinant nucleic acid under conditions in which the cell expresses a product of a gene encoded by the nucleic acid under conditions in which the unmodified polyketide is present, and producing the modified polyketide. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. The present sequence is used in the exemplification of the invention.
ACCESSION NUMBER: ADI14150 DNA DGENE
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes

useful for producing modified polyketide.
INVENTOR: Hutchinson R C; Katz L; Reid R; Hu Z; Gramajo H
PATENT ASSIGNEE: (KOSA-N)KOSAN BIOSCIENCES INC.
PATENT INFO: WO 2004003169 A2 20040108 51
APPLICATION INFO: WO 2003-US20681 20030630
PRIORITY INFO: US 2002-393016P 20020628
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2004-203379 [19]
DESCRIPTION: Synthetic oligonucleotide of the invention SEQ ID NO:4.

L3 ANSWER 26 OF 27 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
AN 2004-203379 [19] WPIDS
AB WO2004003169 A UPAB: 20040318
NOVELTY - An isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) an isolated, purified, or recombinant nucleic acid (II) comprising genes for the biosynthesis mycarose for attachment to a polyketide, the enzymes comprising the MegM, MegL, **MegBIII**, MegBIV, MegDIV, MegBII-2, and MegBVI enzymes;

(2) an isolated, purified, or recombinant nucleic acid (III) comprising genes for the biosynthesis mycarose for attachment of megosamine of a polyketide, the enzymes comprising the MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDII, MegDIII, and MegDI enzymes;

(3) an isolated, purified, or recombinant nucleic acid (IV) comprising genes for the biosynthesis of desosamine to a polyketide, the enzymes consisting of the MegM, MegL, MegCII, **MegCIV**, **MegCV**, MegDII, and MegDIII enzymes;

(4) an expression vector (V) comprising (I);

(5) a host cell comprising (I);

(6) a host cell comprising (II) that expresses a polyketide modifying **enzyme** encoded by a gene from a mycarose biosynthetic gene set, where the **enzyme** is chosen from MegM, MegL, **MegBIII**, MegBIV, MegDIV, MegBII-2, and MegBVI, MegBV, and **MegF**;

(7) a host cell comprising (III) that expresses a polyketide modifying **enzyme** encoded by a gene from a megosamine biosynthetic gene set, where the **enzyme** is chosen from MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDVI, MegDVII, MegDII, MegDIII, and MegDI; and

(8) a host cell comprising (IV) that expresses a polyketide modifying **enzyme** encoded by a gene from a desosamine biosynthetic gene set, where the **enzyme** is chosen from MegM, MegL, MegCII, **MegCIV**, **MegCV**, MegDII, and MegDII, and MegCIII.

USE - (M1) is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising (I) under conditions in which the cell expresses a product of a gene encoded by (I) under conditions in which the unmodified polyketide is present, and producing the modified polyketide. In (M1), the cell further comprises (I) one or more module of a polyketide synthase. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. (All claimed.)

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic of the megalomicin polyketide synthase (meg DEBS) and corresponding meg genes upstream and downstream of the meg DEBS region and cosmids overlapping

this region.
Dwg.1/3

ACCESSION NUMBER: 2004-203379 [19] WPIDS
DOC. NO. CPI: C2004-080057
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide.
DERWENT CLASS: B03 B04 C02 D16
INVENTOR(S): GRAMAJO, H; HU, Z; HUTCHINSON, R C; KATZ, L; REID, R; HUTCHINSON, C R
PATENT ASSIGNEE(S): (KOSA-N) KOSAN BIOSCIENCES INC; (GRAM-I) GRAMAJO H; (HUZZ-I) HU Z; (HUTC-I) HUTCHINSON C R; (KATZ-I) KATZ L; (REID-I) REID R
COUNTRY COUNT: 105
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2004003169	A2	20040108	(200419)*	EN	51
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
AU 2003258978	A1	20040119	(200447)		
US 2004203015	A1	20041014	(200468)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004003169	A2	WO 2003-US20681	20030630
AU 2003258978	A1	AU 2003-258978	20030630
US 2004203015	A1 Provisional	US 2002-393016P	20020628
		US 2003-611442	20030630

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003258978	A1 Based on	WO 2004003169

PRIORITY APPLN. INFO: US 2002-393016P 20020628; US 2003-611442 20030630

L3 ANSWER 27 OF 27 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide;
involving vector-mediated gene transfer and expression in host cell for polyketide production
AN 2004-10434 BIOTECHDS
AB DERWENT ABSTRACT:
NOVELTY - An isolated, purified, or recombinant nucleic acid (I) comprising a **polyketide modifying gene**, where the gene encodes a polyketide modifying **enzyme** chosen from MegR, **MegF**, **MegK**, **MegCIV**, **MegCV**, MegBVI, **MegBIII**, MegL, and MegM enzymes, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) an isolated, purified, or recombinant nucleic acid (II) comprising genes for the biosynthesis mycarose for attachment to a polyketide, the enzymes comprising the MegM, MegL, **MegBIII**, MegBIV, MegDIV, MegBII-2, and MegBVI enzymes; (2) an isolated, purified, or recombinant nucleic acid (III) comprising genes for the biosynthesis mycarose for attachment of megosamine of a polyketide, the enzymes comprising the MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDII, MegDIII, and MegDI enzymes; (3) an isolated, purified, or recombinant nucleic acid (IV) comprising genes for the biosynthesis of desosamine to a polyketide, the enzymes consisting of the MegM, MegL, MegCII, **MegCIV**, **MegCV**, MegDII, and MegDIII enzymes; (4) an expression vector (V) comprising (I); (5) a host cell comprising (I); (6) a host cell comprising (II) that expresses a polyketide modifying **enzyme** encoded by a gene from a mycarose biosynthetic gene set, where the **enzyme** is chosen from MegM, MegL, **MegBIII**, MegBIV, MegDIV, MegBII-2, and MegBVI, MegBV, and **MegF**; (7) a host cell comprising (III) that expresses a polyketide modifying **enzyme** encoded by a gene from a megosamine biosynthetic gene set, where the **enzyme** is chosen from MegM, MegL, MegCII, MegBVI, MegDIV, MegDV, MegDVI, MegDVII, MegDII, MegDIII, and MegDI; and (8) a host cell comprising (IV) that expresses a polyketide modifying **enzyme** encoded by a gene from a desosamine biosynthetic gene set, where the **enzyme** is chosen from MegM, MegL, MegCII, **MegCIV**, **MegCV**, MegDII, and MegDII, and MegCIII.

BIOTECHNOLOGY - Preferred Nucleic Acid: In (I), the gene encodes a polyketide modifying enzymes chosen from MegR, **MegK**, **MegCV**, **MegCIV**, MegBVI, **MegF**, MegBII, MegM, and MegL. (I) further comprises gene encoding an **enzyme** for the attachment of mycarose to the polyketide, preferably MegBV **enzyme**. (I) further comprises gene encoding an **enzyme** for hydroxylation of the polyketide, preferably **MegF enzyme**. (IV) further comprises gene encoding an **enzyme** for the attachment of desosamine to the polyketide, preferably MegCIII **enzyme**. The **polyketide modifying gene** is operably linked to heterologous promoter.

USE - (M1) is useful for producing a modified polyketide, which involves culturing a recombinant cell comprising (I) under conditions in which the cell expresses a product of a gene encoded by (I) under conditions in which the unmodified polyketide is present, and producing the modified polyketide. In (M1), the cell further comprises (I) one or more module of a polyketide synthase. The cell produces megosamine and can attach megosamine to a polyketide, where the cell, it its naturally occurring non-recombinant state cannot produce megosamine. (All claimed.)

EXAMPLE - Isolation of the megalomicin biosynthetic gene cluster was as follows. A cosmid library was prepared in SuperCos vectors from Micromonospora megalomicea total DNA partially digested with Sau3AI and introduced into Escherichia coli using a Gigapack III XL in vitro packaging kit. 32P-labeled DNA probes encompassing the KS2 domain from DEBS, or a mixture of segments encompassing modules 1 and 2 from DEBS, were used separately to screen the cosmid library by colony hybridization. Several colonies which hybridized with the probes were further analyzed by sequencing the ends of their cosmid inserts using T3 and T7 primers. BLAST analysis of the sequences revealed several colonies with DNA sequences highly homologous to genes from the ery cluster. Together with restriction analysis, that led to the isolation of two overlapping cosmids, pKOSO79-93A and pKOSO79-93D which covered 45 kbase the meg cluster. A 400 base pair PCR fragment was generated from the left end of pKOSO79-93D and used to reprobe the cosmid library. Likewise, a 200 base pair PCR fragment generated from the right end of pKOSO79-93A was used to reprobe the cosmid library. Analysis of hybridizing colonies, as described above, resulted in identification of two additional cosmids pKOSO79-938B adjacent to the 5' end of pKOSO79-93D and pKOSO05.57-2.3B

which overlapped the 3' ends of pKOSO79-93A and pKOSO79-93D cosmids. BLAST analysis of the far left and right end sequences of these cosmids indicated no homology to any known genes related to polyketide biosynthesis, and therefore indicates that the set of four cosmids spans the entire megalomicin biosynthetic gene cluster. The glycosyl synthase, transfer, and regulatory genes of the upstream region of the meg PKS were contained in the nucleotide sequence which had a 9024 nucleotide sequence given in the specification. The glycosyl synthase, transfer, and regulatory genes of the downstream region of the meg PKS were contained in the nucleotide sequence which had a 17596 nucleotide sequence given in the specification. (51 pages)

ACCESSION NUMBER: 2004-10434 BIOTECHDS
TITLE: Novel isolated, purified, or recombinant nucleic acid comprising **polyketide modifying gene**, there gene encodes polyketide modifying **enzyme** e.g., MegR, **MegK**, or MegM enzymes useful for producing modified polyketide; involving vector-mediated gene transfer and expression in host cell for polyketide production
AUTHOR: HUTCHINSON R C; KATZ L; REID R; HU Z; GRAMAJO H
PATENT ASSIGNEE: KOSAN BIOSCIENCES INC
PATENT INFO: WO 2004003169 8 Jan 2004
APPLICATION INFO: WO 2003-US20681 30 Jun 2003
PRIORITY INFO: US 2002-393016 28 Jun 2002; US 2002-393016 28 Jun 2002
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-203379 [19]

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=> e hutchinson, c/au
E1            1     HUTCHINSON YVONNE/AU
E2            1     HUTCHINSON Z/AU
E3            0 --> HUTCHINSON, C/AU
E4            1     HUTCHINSONCOLAS J/AU
E5            1     HUTCHINSONCOLE H/AU
E6            1     HUTCHINSONHOWORTH C/AU
E7            1     HUTCHINSONI CLYDE A II/AU
E8            2     HUTCHINSONWILLIAMS K/AU
E9            7     HUTCHINSONWILLIAMS K A/AU
E10           1     HUTCHINSRD/AU
E11           1     HUTCHINSSO J T/AU
E12           1     HUTCHINSSON B/AU

=> e katz, l/au
E1            3     KATZ ZEILIG M/AU
E2           14     KATZ ZVI/AU
E3            0 --> KATZ, L/AU
E4            1     KATZAGIANNAKIS J/AU
E5            1     KATZAKIAN/AU
E6            7     KATZAKIAN A/AU
E7            1     KATZAKIAN A J/AU
E8            2     KATZAKIAN ARTHUR/AU
E9            1     KATZAKIAN JOHN/AU
E10          17     KATZAKIAN JR ARTHUR/AU
E11           1     KATZAKIAN TERRY A/AU
E12           3     KATZAMAN R E/AU
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All: 3 Review: 0

Items 1 - 3 of 3 One page.

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All: 45789 Review: 4226

Items 1 - 20 of 45789 Page 1 of 2290 Next

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